

CHAPTER XII

APPLICATION OF THE THREE- POINT PRINCIPLE IN FIXTURES

The three-point principle is illustrated by a stool having three legs. Such a stool will be firmly supported even when placed upon an uneven surface, which is not the case if a stool having four legs is used. If a jig having four feet is placed upon the table of a machine, and then* is a chip under one of the feet, this will cause the jig to rock when pressure is applied to the upper side; but if there were only three feet and these were located with one foot on a line mid-way between the two feet at the opposite end of the jig, a chip under one foot would not cause a rocking movement. The jig, however, would be tilted upward and, as explained in Chapter I, this might not be noticed by the operator. For this reason, four feet are generally considered preferable when they simply serve to support the jig or fixture. In the mechanical field, however, the principle of three-point support is applicable to many classes of work and its importance is understood and made use of in various kinds of machine and fixture work. In the automobile industry, alignment of the working parts is preserved by making the power plant a self-contained unit and having it supported on three points in order to equalize or neutralize the twisting action caused by the passage* of the car over the more or less uneven surface of the road. If some provision of this kind were not made, distortion of the parts would result and they would consequently fail to operate* properly.

In machine design, the three-point principle is utilized in numerous ways. Sometimes the bed of a lathe is supported on two points at one end of the machine while the other has a single swivel bearing or its equivalent. The machines provided with this feature are easily set up without danger of